View metadata, citation and similar papers at core.ac.uk
brought to you by CORE
provided by Ghent University Academic Bibliography

UNRAVELLING THE BURDEN OF PARASITIC ZOONOSES IN NEPAL

Brecht Devleesschauwer[1,2], Pierre Dorny[1,3], Luc Duchateau[4], Niko Speybroeck[2]

[1]Department of Virology, Parasitology and Immunology, Faculty of Veterinary Medicine, Ghent University, Merelbeke, Belgium
[2]Institute of Health and Society, Faculty of Public Health, Université catholique de Louvain, Brussels, Belgium
[3]Department of Biomedical Sciences, Institute of Tropical Medicine, Antwerp, Belgium
[4]Department of Comparative Physiology and Biometrics, Faculty of Veterinary Medicine, Ghent University, Merelbeke, Belgium

Background
Parasitic zoonoses (PZ) pose a significant but often neglected threat to public health, especially in developing countries. In order to get a better understanding of their health impact, summary measures of population health may be calculated, such as the *disability-adjusted life year* or DALY-metric. However, the data required to calculate such measures are often not readily available for these diseases, which may lead to a vicious circle of underrecognition and underfunding.

Methods
We reviewed the burden of PZ in Nepal, one of the poorest and least develop countries in the world. This review process took place in two phases: (1) a qualitative assessment to identify the endemic PZ and available data, and (2) a quantitative health impact assessment expressed in terms of DALYs. Since no PZ are included in the current lab-based surveillance systems, a comprehensive collection of online and offline data sources was conducted, and various statistical methods were applied to these data sources, including meta-regression, predictive modelling, stochastic simulation, and data extrapolation.

Principal findings
It was found that the highest public health impact was imposed by toxoplasmosis, followed by neurocysticercosis, zoonotic intestinal protozoal and helminths infections, and cystic echinococcosis. Nepal is likely to be endemic for larva migrans, trichinellosis, foodborne trematodiasis and alveolar echinococcosis, but insufficient data were available to quantify their health impact, due to their low or focalized incidence. No evidence was found for the occurrence of anisakiasis, zoonotic schistosomiasis, or zoonotic trypanosomiasis.

Conclusions
In settings with limited surveillance capacity, it is possible to quantify the health impact of PZ and other neglected diseases by applying various statistical methods, thereby unravelling the burden of these diseases and interrupting the vicious circle of neglect. In Nepal, we found that several PZ are endemic and are imposing a not insignificant burden to public health. However, still several critical data gaps could be identified. As effective surveillance systems are key to any public health intervention, these systems should be further promoted in developing countries such as Nepal, as these countries are affected the most by PZ and other neglected diseases.